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Same sweetness, less calorie

SAMARAHAN: Universiti Malaysia Sarawak (UNIMAS) may hold the key to reducing the country's sugar import after discovering a cost-effective method to produce sugar from sago.

A team of researchers led by the university's Faculty of Resource Science and Technology professor in bioprocess technology, Dr Kopli Bujang, said sago sugar had the same sweetness as sugar cane but minus the calorie by 50%.

He said what started out as an experiment to produce ethanol had led to a new by-product — sugar for food.

He explained that research on producing sugar from sago starch started at UNIMAS since 1999 and the first report was published in the Annual Report of IC-Biotech, Osaka University in 2000 by his team at the faculty and Professor Emeritus Dr Ayaaki Ishizaki of Kyushu University.

"At first we wanted to produce ethanol to be used as biofuel but discovered that it wasn't as economical as if we just sell it as sugar," he said.

"We discovered that one kilogramme of starch can produce one kilogramme of sugar, so there's no wastage.

"The sugar produced is still in the testing process and we consume it daily, but it has not been fully tested on diabetic patients and for other benefits compared to sugar cane," he told reporters when met at the 2nd Asean Sago Symposium at UNIMAS here yesterday.

Sago starch, therefore, had the potential to be the alternative raw material to complement the frequent shortage of imported sugar, Kopli said.

"Malaysia imports about 90% of sugar," he said, adding that sago starch was between RM1,500 and RM1,800 per tonne and this was definitely cheaper than sugar cane.

Kopli said the faculty hoped to produce one tonne of sago sugar before the year-end against the present production of 50kg.

He said anyone who wished to buy the sugar for ethanol or lactic acid production was most welcome to do so, otherwise the faculty would just sell it as sugar for consumption.

According to him, sago sugar is produced after five to six hours by enzymatic hydrolisis of sago starch in water at 90 degrees Celsius. Liquid sago sugar is purified using activated carbon and crystallised using oven.

The crystallised sugar looks slightly yellowish but the ground sugar is white and both have the same taste.

Sago sugar contains 96% glucose and the rest is maltose.

He said initial analyses showed that it was as sweet as 50% pure glucose.

In an article by Kopli for the symposium, he wrote that Malaysia and Indonesia, two of the largest sago starch producers in the world, should consolidate their research efforts to help modernise sago plantation to meet rising demands.

"Discernible efforts have been exhibited by Land Consolidate Development Authority of Sarawak through CRAUN Research Sdn Bhd in systematic cultivation of about 12,000ha of sago palms on peat soils in Mukah and Dalat with considerable success.

"However, results from studies on the deep peat section still need to be fully ratified," he clarified.

He said this was because previous and current observations revealed that growth of the sago palms became unsatisfactory as they aged beyond four years in spite of proper water and crop management like regular pruning and fertilisation.

Similar occurence were reported in Riau, Indonesia, he added.

Kopli also said sago palms could be culti-vated on peat but adequate maintenance must be executed to optimise growth and productivity.

Quoting a study by Bintoro, et al., 2009, he said rehabilitation attempt to enhance growth of sago palms had also been reported by modifying the planting distances and construction of canals in the plantation.

The canals served as an effective water management scheme and improved plant growth while providing an effective but simple method to transport harvested logs to the sago mills, he said.

Source : World News & Thestar Online